REMARKS

The enclosed is responsive to the Final Office Action mailed on May 28, 2009. At the time the Examiner mailed the Office Action claims 1, 2, 14-21 and 23 were pending. By way of the present response Applicants have amended no claims, no claims have been canceled, and no new claims have been added. As such, claims 1, 2, 14-21 and 23 are now pending. Applicants respectfully request reconsideration of the present application and the allowance of all claims now presented.

Claim Rejections - 35 U.S.C. § 103

Claims 1-2, 9-14, 16-19, and 23

The Examiner has rejected claims 1-2, 9-14, 16-19, and 23 under 35 U.S.C. § 103(a) as being unpatentable over *Gorczyca et al.* (U.S. Publication No. 2002/0094686 A1) in view of *Boggs* (U.S. Patent No. 6,087,191). Applicant disagrees and submits that one of ordinary skill in the art would not have modified *Gorczyca et al.* as proposed.

It is Applicant's understanding *Gorczyca et al.* discloses a method of processing a quartz body semiconductor article to be subsequently used in an LPCVD deposition furnace for prolonged periods during the production of semiconductor devices on a semiconductor wafer. (Abstract). During the prolonged periods of use in the LPCVD furnace a silicon film is deposited on the semiconductor wafer, and consequently also deposited onto the quartz body. Accordingly, *Gorczyca et al.* discloses mechanically and chemically roughening the quartz body surface so that the layer of silicon collects onto the roughened surface of the quartz body and does not flake off, thus prolonging the period the LPCVD surface can be run before the quartz body must be cleaned to remove deposited films. In a particular embodiment, a silicon film is deposited (for the production of semiconductor devices on the wafer) and partially fills a trench in the roughed quartz body surface, which is also in the LPCVD furnace. This silicon film is then converted to silicon dioxide, which expands to completely fill the trench while also

reducing the stress of the deposited film. Thus, the reason for the oxidation of the silicon film is to reduce the stress of the silicon film formed on the quartz body.

It is Applicant's understanding that *Boggs* discloses a method for repairing scratches formed on a semiconductor wafer which are formed during a polishing operation such as CMP. The goal is to form a damage-free and smooth semiconductor wafer surface. Col. 1, ll. 23-24. "In order for the method of the invention to function, it is essential to provide an adequate environment which will cause the fill material to dissolve and redeposit." (col. 2, ll. 45-47). A suitable essential environment is a solvent environment such as a hydrothermal or supercritical environment where the filler material "dissolves and redeposits at locations having a high surface energy (i.e., at surface defects)." Col. 4, ll. 12-13.

The Examiner suggests on the top of page 4 of the Office Action that it would have been obvious to fill the trenches with silicon dioxide directly rather than by converting a deposited silicon film to silicon dioxide by oxidation in order to save time and processing costs. Applicant respectfully submits that this statement is inapposite with the above characterization of *Gorczyca et al.* As described above, **and of particular importance**, is that the silicon film is formed on the roughened surface of the quartz body during the formation of a silicon film on a wafer substrate during the production semiconductor devices. Surely, one of ordinary skill in the art of producing semiconductor devices would not substitute a silicon layer in a semiconductor device with an aluminum oxide, zirconium oxide or yttrium oxide layer with a reasonable expectation of success. For example, one of ordinary skill in the art of producing semiconductor devices would not arbitrarily replace a silicon channel region of a MOSFET with an aluminum oxide, zirconium oxide or yttrium oxide channel region.

The Examiner suggests on page 4 of the Office Action to substitute the film that is deposited during the extended LPCVD process of *Gorczyca et al.* with the zirconium oxide film disclosed in *Boggs*. Similar to the previous discussion, Applicant respectfully submits that this statement is inapposite with the above characterization of *Gorczyca et al.* In addition, Applicant respectfully submits that such a modification would render the quartz body in *Gorczyca et al.* unsuitable of its intended use. *Gorczyca et al.* requires a roughened surface in order to achieve a prolonged operation periods between shutdowns of the LPCVD equipment. To the contrary, the deposited material in *Boggs* provides a damage-free and smooth surface. Such a proposed modification of would render the quartz body in *Gorczyca et al.* unsuitable of its intended use, as a smooth surface would significantly reduce the operation periods between shutdown of the LPCVD equipment.

Therefore, Applicant respectfully submits that the invention claimed in claims 1-2, 9-14, 16-19, and 23 is not obviated by the disclosures of *Gorczyca et al.* in view of *Boggs* and Applicant respectfully requests the withdrawal of the rejections of the claims under 35 U.S.C. § 103(a).

Claims 4 and 15

The Examiner has rejected claims 4 and 15 under 35 U.S.C. § 103(a) as being unpatentable over *Gorczyca et al.* and *Boggs* as applied to claim 1, in view of *Choi* (U.S. Patent No. 6,833,279 B2). In particular, the Examiner suggests to deposit a yttrium oxide layer on the quartz body surface of *Gorczyca et al.* rather than the silicon layer.

Applicant respectfully submits that this statement is inapposite with the above characterization of *Gorczyca et al.* As described above, the silicon film is formed on the roughened surface of the quartz body during the formation of a silicon film on a wafer substrate during the production semiconductor devices. Surely, one of ordinary skill in the art

of producing semiconductor devices would not substitute a silicon layer in a semiconductor device for a yttrium oxide layer with a reasonable expectation of success. For example, one of ordinary skill in the art of producing semiconductor devices would not arbitrarily replace a silicon channel region of a MOSFET with a yttrium oxide channel region.

Therefore, Applicant respectfully submits that the invention claimed in claims 4 and 15 is not obviated by the disclosures of *Gorczyca et al.* in view of *Boggs* and *Choi*, and Applicant respectfully requests the withdrawal of the rejections of the claims under 35 U.S.C. § 103(a).

Claims 5-8, 20, and 21

The Examiner has rejected claims 5-8, 20, and 21 under 35 U.S.C. § 103(a) as being unpatentable over *Gorczyca et al.* and *Boggs* as applied to claim 1, and further in view of *Kowalsky et al.* (U.S. Patent No. 6,861,101 B1) and *Choi.*

It is Applicant's understanding that *Kowalsky et al.* discloses a plasma spray method. Applicant respectfully submits that *Kowalsky et al.* does not remedy the deficiencies of the proposed modification of *Gorczyca et al.* in view of *Boggs* and *Choi* as discussed above.

Therefore, Applicant respectfully submits that the invention claimed in claims 5-8, 20, and 21 is not obviated by the disclosures of *Gorczyca et al.* in view of *Boggs, Kowalsky et al.* and *Choi*, and Applicant respectfully requests the withdrawal of the rejections of the claims under 35 U.S.C. § 103(a).

Pursuant to 37 C.F.R. § 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. §§ 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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